U.S. Department of Transportation

Intelligent Transportation Systems Standards Fact Sheet

December 1999

EIA-795 Subcarrier Traffic Information Channel (STIC) System

Overview

An important aspect of intelligent transportation systems (ITS) communications involves the one-way broadcast of transportation or traffic information to travelers and vehicles. A promising means for accomplishing this is through the use of subcarriers on broadcast FM stations. In the United States, the broadcast FM band extends, nominally, from 88 MHz to 108 MHz, with stations generally licensed on the odd multiples of 100 KHz frequency in that band. Stations have the opportunity to use one or more of several possible subcarriers to broadcast information in addition to the main audio channel. These subcarriers are not audible with a standard FM receiver, but can be demodulated with equipment designed to match the subcarrier signal.

To obtain a copy of this standard, please contact:

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The Subcarrier Traffic Information Channel (STIC) system is a digital system designed for ITS and other applications using subcarriers on broadcast FM stations. This standard, **EIA-795, Subcarrier Traffic Information Channel (STIC) System,** defines the system and focuses on the broadcast protocols for the lower layers of the open system interconnection (OSI) protocol stack. This standard was developed under the auspices of the Consumer Electronics Association (CEA), Technology and Standards R6-Mobile Electronics Committee and is published as an Electronics Industry Alliance (EIA) document.

What is this standard for?

The STIC system is intended for one-way transmission of ITS and other related information to mobile and fixed users using subcarriers on broadcast FM signals. It is designed to be flexible, allow for trade-offs among data rate, robustness, receiver battery life and transmission delay. The waveform explicitly supports:

- ATIS message sets defined by SAE J2369;
- Differential global positioning system (DGPS) message sets defined by the Radio Technical Commission for Maritime Services (RTCM), Special Committee No. 104;
- Emergency alert system messages defined by the Code of Federal Regulations (CFR) Title 47, Part 11; and
- Retransmission of radio broadcast data system (RBDS) data.

The standardized STIC system supports the original mobile high rate STIC encoding methods as tested by the National Radio Systems Committee (NRSC) High Speed Subcarrier (HSSC) Subcommittee.

Who uses it?

This standard should be used by developers of both STIC transmission and STIC reception equipment, and to information providers as a guide for incorporating ITS data into the STIC data stream.

How is it used?

The standard provides a detailed description of the STIC waveform. This description begins with a list of definitions arranged in an order that provides a tutorial of the waveform. The definitions are followed by the details of the physical layer, including modulation and filtering. The standard also includes specifications for the frame structure and system messages. Annexes are included for various encoding options that support multiple applications with diverse requirements.

Scope

The scope of this standard includes the data link and physical media layers of the OSI protocol stack for the STIC system. It describes the signal, as it would be provided to the FM station, but does not cover processing by the FM station itself (i.e., modulation and transmission). The standard describes the coding and interleaving to be used for several different encoding options and describes applications that might use these encoding options. It does not, however, address the processing of the applications that the STIC system might support.

Related documents

RTCM GNSS -- Radio Technical Commission for Maritime Services (RTCM) Recommended Standards for Differential Global Navigation Satellite Systems (GNSS), Version 2.2.

SAE J2369 – Standards for ATIS Message Sets Delivered over Bandwidth Restricted Media

NRSC RBDS -- Standard Specification of the Radio Broadcast Data Systems (RBDS)

U.S. Code of Federal Regulations, Title 47, Part 11 – Emergency Alert System (EAS), 4 June 1997 (47 CFR Part 11)

For more information on ITS standards, contact the Federal Highway Administration, ITS Joint Program Office, Room 3401, HOIT, 400 7th Street, SW, Washington, DC 20590, phone: 202-366-2180, fax: 202-366-3302, Web site: www.its-standards.net

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